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4 **UNITED STATES DISTRICT COURT**
5 **NORTHERN DISTRICT OF CALIFORNIA**
6 **SAN JOSE DIVISION**
7

8 SPACE DATA CORPORATION,

9 Plaintiff,

10 v.

11 ALPHABET INC., et al.,

12 Defendants.
13

Case No. 16-cv-03260-BLF

**ORDER CONSTRUING CLAIMS IN
U.S. PATENT NOS. 6,628,941; 9,632,503;
9,643,706; 9,678,193**

[Re: ECF 250, 263, 267]

14 Plaintiff Space Data Corporation (“Space Data”) brings this lawsuit against Defendant
15 Alphabet Inc., Google LLC, and Loon LLC¹ (collectively, “Google”), alleging various claims
16 including infringement of four of Space Data’s patents directed to wireless communication
17 technology using high-altitude balloons: U.S. Patent Nos. 6,628,941 (“the ’941 patent”);
18 9,632,503 (“the ’503 patent”); 9,643,706 (“the ’706 patent”); and 9,678,193 (“the ’193 patent”)
19 (collectively, the “Asserted Patents”). The Court held a tutorial on July 20, 2018 and
20 a *Markman* hearing on July 27, 2018. The Court further allowed the parties to meet and confer to
21 discuss whether they agreed on construction of certain terms and to submit supplemental briefing
22 on one term. ECF 305. The parties submitted their supplemental briefing and Joint Letter Brief
23 reporting their meet and confer. *See* Defs.’ Suppl. Br., ECF 319, Pl.’s Suppl. Br., ECF 326; Joint
24 Letter Br., ECF 318.

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27 ¹ After the *Markman* hearing, the parties filed a stipulation stating that they agreed to allow Space
28 Data to add Loon LLC as a defendant. ECF 339. The Court granted the parties’ stipulation.
ECF 340. Thereafter, Space Data filed the Fourth Amended Complaint adding Loon LLC as a
defendant. ECF 344.

I. BACKGROUND

The Asserted Patents are directed to balloons that carry radio transceivers and operate as high-altitude communications platforms. Space Data asserts that Google’s Project Loon infringes the Asserted Patents. Fourth Am. Compl. ¶¶ 297–96, 322–405, ECF 344. Each patent is summarized below.

A. The ’941 Patent

The ’941 patent is titled “Airborne Constellation of Communications Platforms and Method” and was issued on September 30, 2003. Ex. 1 to Hosie Decl. (the ’941 patent), ECF 250-3. This patent claims systems and methods relating to a constellation of lighter-than-air platforms that float in the stratospheric layer of the Earth’s atmosphere. *Id.* at 1:7–12. In some embodiments, lighter-than-air balloons carry microelectronic communications equipment. *Id.* at 3:41–45. Synchronized launching of the balloons at spaced-apart geographic locations provides a low cost constellation of “satellites.” *Id.* at 3:59–61. The balloons can be raised or lowered in altitude to catch “prevailing winds” in order to keep the balloons evenly spaced-apart. *Id.* at 3:65–4:1.

B. The ’503 Patent

The ’503 patent is titled “Systems and Applications of Lighter-than-Air (LTA) Platforms” and was issued on April 25, 2017. Ex. 2 to Hosie Decl. (the ’503 patent), ECF 250-4. The patent provides methods for utilizing lighter-than-air free floating platforms, facilitating transmission of signals in a legally allowed manner, and terminating the flight of the platforms in an environmentally acceptable approach. *Id.* at 1:40–52. For instance, a processor can be used to turn off a transmitter and terminate the flight of a platform when a termination condition is detected. *Id.* at 6:17–27.

C. The ’706 Patent

The ’706 patent is also titled “Systems and Applications of Lighter-than-Air (LTA) Platforms” and was issued on May 9, 2017. Ex. 17 to Hosie Decl. (the ’706 patent), ECF 250-19. This patent discloses systems and methods directed to the flight termination and recovery of lighter-than-air platforms. *See, e.g., id.* at 4:28–33. In some embodiments, a transmitter provides

the last recorded position of an unmanned balloon of an airborne platform and sends it to a ground station to aid the recovery of the unmanned balloon. *Id.* at 9:40–47, 10:3–7.

D. The '193 Patent

The '193 patent is also titled “Systems and Applications of Lighter-than-Air (LTA) Platforms” and was issued on June 13, 2017. Ex. 25 to Hosie Decl. (the '193 patent), ECF 250-27. The patent discloses methods for controlling the altitude of a free floating lighter-than-air platform. *See, e.g., id.* at 3:59–63. For example, the patent teaches that an altitude sensor can be used to control a vent actuator in order to adjust the “rise rate” of the platform. *Id.* The patent further claims methods for controlling a “target balloon” by “controlling [its] altitude.” *Id.* at 50:50–54.

II. LEGAL STANDARD

A. General Principles

Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 387 (1996). “It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude,’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citation omitted), and, as such, “[t]he appropriate starting point . . . is always with the language of the asserted claim itself,” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998).

Claim terms “are generally given their ordinary and customary meaning,” defined as “the meaning . . . the term would have to a person of ordinary skill in the art in question . . . as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1313 (internal citation omitted). The court reads claims in light of the specification, which is “the single best guide to the meaning of a disputed term.” *Id.* at 1315; *see also Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272, 1284-85 (Fed. Cir. 2014) (en banc). Furthermore, “the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). The words of the claims must therefore be understood as the inventor used them, as

such understanding is revealed by the patent and prosecution history. *Id.* The claim language, written description, and patent prosecution history thus form the intrinsic record that is most significant when determining the proper meaning of a disputed claim limitation. *Id.* at 1315–17; *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Evidence external to the patent is less significant than the intrinsic record, but the court may also consider such extrinsic evidence as expert and inventor testimony, dictionaries, and learned treatises “if the court deems it helpful in determining ‘the true meaning of language used in the patent claims.’” *Philips*, 415 F.3d at 1318 (quoting *Markman*, 52 F.3d at 980). However, extrinsic evidence may not be used to contradict or change the meaning of claims “in derogation of the ‘indisputable public records consisting of the claims, the specification and the prosecution history,’ thereby undermining the public notice function of patents.” *Id.* at 1319 (quoting *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995)).

B. Indefiniteness

Under 35 U.S.C. § 112, ¶ 2,² a patent must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.” Section 112, ¶ 2 includes what is commonly called the “definiteness” requirement. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2125 (2014). In *Nautilus*, the Supreme Court held that “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 134 S. Ct. at 2124. Indefiniteness renders a claim invalid, and must be shown by clear and convincing evidence. *See Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008); *cf. Nautilus*, 134 S. Ct. at 2130 n.10.

² Paragraph 2 of 35 U.S.C. § 112 was replaced with newly designated § 112(b) when the America Invents Act (“AIA”), Pub. L. No. 112-29, took effect on September 16, 2012. The ’941 patent was filed before that date. The other Asserted Patents issued from applications which parent applications were filed before September 16, 2012. Accordingly, the Court refers to the pre-AIA version of § 112. The Court also notes that the pre-AIA and post-AIA versions of 35 U.S.C. § 112 are virtually identical except for the paragraph numbering.

III. AGREED CONSTRUCTIONS

The parties filed a stipulation agreeing on the construction of two terms. *See* ECF 317.

The Court approves and adopts the following constructions:

Term	Agreed Construction
“free floating” (’941 patent: claims 1, 2, 7, 17, 27, 40, 49, 52, and 67; ’503 patent, claims 8 and 9)	plain meaning
“without any longitudinal and latitudinal control” (’941 patent: claims 1, 52, and 67)	without any horizontal control other than adjusting altitude to catch and drift with different wind patterns

Accordingly, the Court need not address the parties’ arguments in their briefs regarding the above terms.

IV. DISPUTED TERMS

- A. **“are launched in a manner such that when in an operating range of 60,000 to 140,000 feet there is substantially a relative distance between said plurality of lighter-than-air platforms”** (’941 patent: claims 1, 52, and 67)

Space Data’s Proposal	Google’s Proposal	Court’s Construction
are launched with regard to creating and/or maintaining, when in an operating range of 60,000 to 140,000 feet, a suitable mix of inter-platform distances to support a wireless communications system	Indefinite: (1) “substantially a relative distance” as insolubly ambiguous under <i>Nautilus, Inc. v. Biosig Instruments</i> , 134 S. Ct. 2120 (2014); and (2) mixed system and method claim under <i>IPXL Holdings, LLC v. Amazon.com, Inc.</i> , 430 F.3d 1377 (Fed. Cir. 2005).	Indefinite: “substantially a relative distance” renders the claims indefinite under <i>Nautilus, Inc. v. Biosig Instruments</i> , 134 S. Ct. 2120 (2014)

The disputed phrase is recited in claims 1, 52, and 67 of the ’941 patent. Claim 1 is representative:

1. A free floating constellation communications system comprising:

a plurality of lighter-than-air platforms comprising at least a first platform and a second platform; said first and second platforms comprising a communications signal transceiver and being free floating without any longitudinal and latitudinal position control; and

a plurality of communications devices within a contiguous geographic area, at least one of said communications devices having communications capability with said communications

1 signal transceivers;

2 wherein said at least one of said communications devices is capable of handing off
3 communication with said first platform to said second platform as said first platform
4 moves out of a communication range of said at least one of said communications devices,
5 and

6 wherein said free floating constellation communications system provides a line-of-sight
7 coverage of wireless data to a population on a contiguous landmass and said plurality of
8 lighter-than-air platforms **are launched in a manner such that when in an operating
9 range of 60,000 to 140,000 feet there is substantially a relative distance between said
10 plurality of lighter-than-air platforms.**

11 '941 patent at 20:38–61 (emphasis added).

12 According to Space Data, Google represents that “launched in a manner” means
13 “synchronized launching of a plurality of platforms from spaced apart geographical locations.”
14 Opening Br. 10, ECF 249-3. While Google contends that the '941 patent discloses “only
15 synchronized launches from evenly spaced apart launch sites,” its ultimate position is that claims
16 1, 52, and 67 are indefinite. Responsive Br. 11 n.9, ECF 263. In any case, Space Data argues that
17 Google reads multiple limitations into the claims because they say nothing about “synchronized
18 launching” or “spaced apart geographical limitations.” Opening Br. 10. Space Data asserts that
19 the prosecution history does not show any disavowal of claim scope and that it amended the
20 claims based on the language suggested by the patent examiner during an interview. *Id.* at 10–11
21 (citing Ex. 10 to Hosie Decl., ECF 250-12).

22 Space Data also argues that the claims are not rendered invalid by the phrase “substantially
23 a relative distance.” Opening Br. 11. According to Space Data, the disputed term is one of degree
24 and it requires that balloons at operational altitude are spaced at proper distances to provide
25 substantial coverage of wireless data. *See id.* at 12. Space Data explains that “coverage of an area
26 . . . [depends] on the coverage radius of the balloons which dictates [the] maximum allowable
27 separation between [the] balloons.” *Id.* Space Data asserts that determining the spacing necessary
28 to have a near continuous coverage for a specific network would be a trivial task for a person of
ordinary skill in the art. *Id.* at 12–14. For support, Space Data points to Figure 8 of the '941
patent which depicts the coverage area for each platform “such that substantially the entire
geographic area is encompassed within the reception range of one or more” platforms. *Id.* at 13
(citing '941 patent at 10:58–60).

1 In addition, Space Data contends that the “launched in the manner” language in the
2 disputed term requires “capability” as opposed to “actual use,” and thus is not invalid as a mixed
3 system and method claim under *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed.
4 Cir. 2005). Opening Br. 15–18.

5 Google responds that the phrase “substantially a relative distance” is a meaningless phrase
6 that renders the claims indefinite. Responsive Br. 7. Google argues that the disputed term is
7 ambiguous because the word “relative” is superfluous. *Id.* Google also contends that the word
8 “substantially” renders the disputed term nonsensical because the inclusion of “substantially”
9 makes sense only if the claims “specified a distance that one could attempt to approximate.” *Id.*
10 at 7 n.6. In Google’s view, the claims do not specify any such distance. *Id.* Google further
11 asserts that the testimony of Space Data’s own expert, Dr. Sam Pullen, confirms that the claims
12 are indefinite and fail to provide clear notice of what is claimed. *See id.* (citing Ex. 6 to Pransky
13 Decl. 60:7–9, ECF 263-7 (Dr. Pullen opining that “there is substantially . . . I mean, there is . . . a
14 relative distance that’s kind of a very loose objective[.] . . . [T]he system has wiggle room”)).

15 While the word “relative” is not ambiguous, the Court finds that the use of “substantially”
16 along with “relative distance” renders the meaning of the disputed term unclear. When used in a
17 claim, the word “substantially” can denote either language of approximation or language of
18 magnitude. *See Deering Precision Instruments, LLC v. Vector Distrib. Sys., Inc.*, 347 F.3d 1314,
19 1323 (Fed. Cir. 2003). However, it is unclear which interpretation is applicable. As Google
20 suggests, “substantially” does not appear to be used as a term for approximation as the claims do
21 not specify what distance the “relative distance” approximates. Nor does the disputed term
22 indicate whether “substantially” means “significant” or “insubstantial” as a term connoting
23 magnitude. Accordingly, the claims do not inform a person of ordinary skill in the art as to the
24 meaning of the phrase “substantially a relative distance” recited in the disputed term.

25 Space Data argues that the phrase “substantially a relative distance” has meaning given
26 that the PTO examiner suggested the language which is also cited in the Reasons for Allowance.
27 Reply Br. 2 (citing Ex. 10 to Hosie Decl.; Ex. 7 to Pransky Decl., ECF 263-8); *see also* Opening
28 Br. 14–15. To be sure, an examiner’s suggestion of the disputed term indicates that he or she did

not identify any issues of clarity. However, that fact does not mean that the examiner is correct. The Court assigns little weight to Space Data’s evidence because the ambiguity of the phrase “substantially a relative distance” is so apparent.

Space Data further attempts to address the aforementioned deficiency by arguing that “substantially” accounts “for the practical consideration that, in light of the winds, a balloon constellation cannot continuously maintain 100% coverage.” Reply Br. 2, ECF 267. In this regard, Dr. Pullen opines that “substantially a relative distance” refers to “distances between [the] platforms that are maintained to achieve near-continuous wireless coverage for the desired geographic area.” Pullen Decl. ¶ 48, ECF 250-1. However, the disputed term does not reference maintaining “near-continuous wireless coverage” and it is improper to import limitations to a claim even if they are disclosed in the specification. *See CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1231 (Fed. Cir. 2005) (“[T]his court will not at any time import limitations from the specification into the claims.”).

During the hearing, Space Data argued that “substantially a relative distance” is used in the disputed term to mean achieving “substantially complete coverage” when viewed in light of the specification and figures of the ’941 patent. *See* Hearing Tr. 8:14–10:7, ECF 306; *id.* at 10:25–11:1 (Space Data arguing that “ ‘substantially’ ” equals nearly 100 percent”). However, even assuming that a person of ordinary skill in the art would understand that the phrase “substantially a relative distance” pertains to “substantially complete coverage” or near-continuous wireless coverage, the word “substantially” renders the claims indefinite as explained below.

Here, the parties agree that “substantially” is a term of degree. *See* Opening Br. 11–12; Responsive Br. 9. “When a word of degree is used, the court must determine whether the patent provides some standard for measuring that degree.” *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010) (internal quotation marks and citation omitted). The key requirement is that “[t]he claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014).

The Court turns to the intrinsic record of the ’941 patent to determine whether it informs

the objective boundaries of “substantially” in the disputed claims. The ’941 patent discloses the use of airborne platforms to provide complete coverage over a geographic area. It also discloses that the coverage may not be perfectly complete. *See, e.g.*, ’941 patent, Figure 8 (showing gaps in the coverage area); *id.* at 10:53–60 (explaining that Figure 8 depicts the line-of-sight coverage area for each airborne platform “such that substantially the entire geographic area is encompassed within the reception range of the platforms”); Ex. 11 to Hosie Decl. (“’941 patent’s original application, claim 40), ECF 250-13. Indeed, during the hearing, Space Data acknowledged that the coverage may not be 100%. *See, e.g.*, Hearing Tr. 9:2-5.

The intrinsic record, however, fails to provide any guidance on what kind of coverage constitutes substantial coverage over a geographic area. Although Figure 8 shows coverage areas as well as gaps in coverage in an exemplary geographic area, the written description of the ’941 patent does not explain the tolerance level of the gaps in coverage. Space Data does not represent that a person of ordinary skill in the art would be able to deduce that information from Figure 8. Nor do other portions of the specification provide any standard of measure for determining whether the coverage is substantial. In fact, during the hearing, Space Data provided no argument on what level of coverage would be considered substantial. Moreover, the prosecution history does not offer any guidance that fills in the hole of the specification. While the record shows that the patent applicant amended the claims to add the disputed term, neither the applicant’s amendment nor the PTO’s Reasons of Allowance shows how a person of ordinary skill in the art would be informed of the “objective boundaries” of the phrase “substantially a relative distance” or “substantially complete coverage.” *Interval Licensing*, 766 F.3d at 1371. As such, the intrinsic record “fails to provide the public notice of whether or not they infringe.” *Advanced Display Techs. of Texas, LLC v. AU Optronics Corp.*, No. 6:11-CV-011, 2012 WL 2872121, at *14 (E.D. Tex. July 12, 2012) (citing *Halliburton Energy Servs., Inc. v. M-I, LLC*, 514 F.3d 1244, 1255 (2008)).

To be sure, as Space Data argues (*see* Reply 2–3), the law does not require absolute or mathematical precision in a patent disclosure. *Interval Licensing*, 766 F.3d at 1371. However, Space Data cannot merely use the term “substantially” as a word of degree and expect that a

person of ordinary skill in the art would understand what that means. The intrinsic record of the '941 patent must provide some standard of measure or other disclosure that provides “objective boundaries” of the claim scope. *Interval Licensing*, 766 F.3d at 1371. Without any guidance, “substantially a relative distance” (let alone “substantially complete coverage”) fails to provide sufficient notice of its scope because it depends “on the unpredictable vagaries of any one person’s opinion.” *Id.* at 1371 (citation omitted). In other words, the '941 patent “fails to provide a person of ordinary skill in the art an objective anchor” against which a potentially infringing product or method may be compared to determine whether the product or method meets the “substantially” limitation of the disputed claims. *Advanced Display*, 2012 WL 2872121, at *12 (holding that the claim was indefinite because the patent failed to “provide a standard for measuring the difference between a mere modulated surface and a *highly* modulated surface” (emphasis in original)).

Space Data argues that a person of ordinary skill in the art would understand the boundaries of the phrase “substantially a relative distance” given the purpose of the '941 patent. Reply Br. 3. In Space Data’s view, one of ordinary skill in the art could choose a “suitable mix of distances” based on the “coverage objective” and applicable network equipment. *See id.* However, the issue is not whether one would know how to select a distance between platforms to avoid a gap in coverage. Rather, the problem is that the '941 patent fails to provide any guidance or examples on how a person of ordinary skill in the art could objectively determine the size of tolerable gaps in coverage. *Cf. Enzo Biochem*, 599 F.3d at 1333–34 (holding that the phrase “not interfering substantially” did not render the claims indefinite because the specification provided guidance and examples as to how much interference would be tolerated). The cases cited by Space Data do not change this conclusion as they are distinguishable.

For example, Space Data cites *Advanced Aerospace* for the proposition that the phrase “substantially a relative distance” is not indefinite given the purpose disclosed in the '941 patent. Space Data argues that the phrase “is as precise as the subject matter permits—balloons in the wind.” Reply Br. 2–3 (citing *Advanced Aerospace Techs., Inc. v. United States*, 124 Fed. Cl. 282 (Fed. Cl. 2015)).

Advanced Aerospace is not helpful here. In *Advanced Aerospace*, tolerance levels were

1 acceptable so long as the goal of launching and capturing aircrafts was achieved. Here, the goal is
2 complete coverage. Thus, absent some specification of what amount of coverage equates to
3 “complete,” a person of ordinary skill in the art is left to guessing whether, for example, 98%,
4 95%, or 75% coverage is enough.

5 As another example, Space Data relies on *Orthokinetics* and argues that a patent does not
6 need to disclose the dimensions of the claimed invention. See Reply Br. 4 (citing (*Orthokinetics*,
7 *Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565 (Fed. Cir. 1986)). In *Orthokinetics*, the disputed
8 term recited “wherein said front leg portion [of a travel chair] is *so dimensioned* as to be insertable
9 through the space between the doorframe of an automobile and one of the seats thereof.” 806 F.2d
10 at 1575 (emphasis added). The issue was whether the phrase “so dimensioned” rendered the
11 claims indefinite. Because it was undisputed that the claims required a person building a travel
12 chair to “measure the space between the selected automobile’s doorframe and its seat and then
13 dimension the front legs of the travel chair so they will fit in that particular space in that particular
14 automobile,” one of ordinary skill in the art could have easily determined the appropriate
15 dimensions. *Id.* In other words, there was a standard of measure—the space between the selected
16 automobile’s doorframe and its seat—that informed the objective boundaries of the term “so
17 dimensioned.” Unlike *Orthokinetics*, the ’941 patent in this case does not identify any standard of
18 measure or factor that guides a person of ordinary skill in the art how to determine the objective
19 boundaries of the phrase “substantially a relative distance.”

20 As a final point, Space Data asserts that the word “relative” conveys that the distance
21 between the balloons need not be a single distance but could be of “mixed distances.” Reply Br.
22 5. Even if Space Data is correct, that interpretation of “relative” does not change the fact that the
23 intrinsic record of the ’941 patent fails to provide the “objective boundaries” of the phrase
24 “substantially a relative distance” to a person of ordinary skill in the art. *Interval Licensing*, 766
25 F.3d at 1371.

26 For the foregoing reasons, the “substantially a relative distance” phrase, when viewed in
27 light of the specification and prosecution history, fails to “inform those skilled in the art about the
28 scope of the invention with reasonable certainty.” *Nautilus*, 134 S.Ct. at 2129. Claims 1, 52, and

67 of the '941 patent which recite that phrase are thus invalid for indefiniteness. Due to this conclusion, the Court need not determine whether those claims are indefinite as a mixed system and method claim under *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005).

B. “control signal processor device” ('941 patent: claim 7)

Space Data’s Proposal	Google’s Proposal	Court’s Construction
Plain meaning, no construction needed.	Indefinite: means-plus-function without corresponding structure	Indefinite under <i>Nautilus, Inc. v. Biosig Instruments</i> , 134 S. Ct. 2120 (2014). (Claim 7 depends from claim 2, which further depends on independent claim 1 which is invalid for indefiniteness)

The disputed phrase “control signal processor device” appears in claim 7 of the '941 patent, which recites:

7. The floating constellation communications system of claim 2, wherein said regulator comprises:

- a controllable gas vent;
- a controllable ballast release device;
- an altitude determining mechanism; and
- a **control signal processor device** connected with said transceiver, said altitude determining mechanism, said gas vent and ballast release so that the altitude can be adjusted.

'941 patent at 21:25–33 (emphasis added).

Claim 7 depends from claim 2, which further depends from independent claim 1. In the previous disputed term, the Court found that claim 1 is invalid for indefiniteness. Google argues that there is no need for the Court to construe claim 7 if independent claim 1 is indefinite. Responsive Br. 14 n.13. The Court agrees. The limitations in claims 2 and 7 do not cure the indefiniteness identified in claim 1 above. The Court thus finds that claim 7 is also invalid for indefiniteness. Accordingly, the Court need not address the parties’ arguments pertaining to this disputed term.

C. “(determining/determine) a desired movement of the (target balloon/balloon) based on the determined locations of the one or more neighbor balloons relative to the determined location of the (target balloon/balloon’s determined location)” (’193 patent: claims 1 and 17)

Space Data’s Proposal ³	Google’s Proposal	Court’s Construction
(determining/determine) how to move the balloon based on its location relative to the locations of one or more neighbor balloons to manage a fleet of balloons	(determining/determine) how to reposition the balloon based on its location relative to the locations of one or more neighbor balloons to achieve a desired formation of balloons	(determining/determine) how to move the (target balloon/balloon) based on its location relative to the locations of one or more neighbor balloons to manage a fleet of balloons

The parties dispute the following phrases in the ’193 patent:

“determining a desired movement of the target balloon based on the determined locations of the one or more neighbor balloons relative to the determined location of the target balloon” (claim 1); and

“determine a desired movement of the balloon based on the determined locations of the one or more neighbor balloons relative to the balloon’s determined location” (claim 17).

The two disputed phrases are identical except that claim 17 recites “determine” instead of “determining” and “balloon” instead of “target balloon.” Thus, the Court addresses the two phrases together as the parties have done in their briefs. Claim 1 is representative and recites:

1. A method comprising:

determining a location of a target balloon;

determining locations of one or more neighbor balloons relative to the determined location of the target balloon, wherein the target balloon comprises a communication system that is operable for data communication with at least one of the one or more neighbor balloons;

determining a desired movement of the target balloon based on the determined locations of the one or more neighbor balloons relative to the determined location of the target balloon, wherein the desired movement of the target balloon comprises a desired horizontal movement of the target balloon; and

controlling the target balloon based on the desired movement of the target balloon, wherein controlling the target balloon based on the desired movement of the target balloon comprises controlling an altitude of the target balloon based on the desired horizontal movement of the target balloon.

³ The parties have submitted revised proposed constructions to narrow the dispute of this term. Joint Letter Br. 1–2. Thus, while the Court considers the arguments contained in the parties’ briefs, it does not assess the originally proposed constructions set forth therein.

'503 patent at 9:49–10:19 (emphasis added).

As a preliminary issue, the Court notes that both parties' arguments rely on the language in Google's U.S. Patent No. 8,820,678 (the "'678 patent"). In 2015, Space Data initiated a PTO interference proceeding and asserted that the claims in Patent Application No. 14/328,331 (the "'331 application") had priority over those in Google's '678 patent. *See* Summary Judgment Order, ECF 255. Google did not contest priority and the PTO's Patent Trial and Appeal Board ("PTAB") issued a ruling in Space Data's favor. *Id.* As a result, Space Data's '331 application issued as the '193 patent which contains the disputed phrases at issue.

While citing to the '678 patent, the parties provide no authority showing that the Court is required to construe the '193 patent claims in light of the disclosure of the '678 patent. The Court finds that Federal Circuit law provides guidance that it is proper to construe the disputed term in light of the '193 patent as opposed to the '678 patent. While not directly on point, in the context of an interference proceeding, Federal Circuit law provides that the PTO and district court must construe a claim with reference to the specification in which it appears not the one it was copied from, for § 102 or § 103 challenges. *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1375 (Fed. Cir. 2009); *see also Koninklijke Philips Elecs. N.V. v. Cardiac Sci. Operating Co.*, 590 F.3d 1326, 1335–56 (Fed. Cir. 2010). It is only when the issue is "whether both parties have a right to claim the same subject matter [(i.e., when written description for an interference count is challenged)], the claim construction analysis properly occurs in the context of the specification from which the claim[] [was] copied." *Agilent*, 567 F.3d at 1375. Here, the issue is not whether Space Data has the right to claim the subject matter in the '678 patent,⁴ and thus it is proper to construe claims of the '193 patent based on its own specification. Nevertheless, the parties' interference proceeding which concerned the '678 patent is part of the intrinsic record of the '193 patent. Thus, this Court may consider the disclosure of the '678 patent as part of the prosecution history. During the hearing, Google admitted that the '678 patent is "instructive" evidence. Hearing Tr. 53:25.

⁴ That issue could have been presented to the PTAB during the interference proceeding.

Against this backdrop, the Court turns to the parties’ revised constructions in their Joint Letter Brief which differ in two aspects: (1) “move” versus “reposition”; and (2) “to manage a fleet of balloons” versus “to achieve a desired formation of balloons.” Joint Letter Br. 1–2. Space Data proposes the former while Google suggests the latter.

Space Data argues that its construction makes clear that the purpose of moving the target balloon relative to other balloons is to “manag[e] a group of balloons.” Joint Letter Br. 1. In Space Data’s view, the “fleet” captures this concept because that word is defined as “a group (as of ships, planes, or trucks) operated under unified control.” *Id.* (citing *Merriam-Webster.com*, Merriam-Webster (Aug. 6, 2018)). According to Space Data, Google contends that “a desired formation” is the proper construction because “it captures the idea of trying to keep particular spacing between the balloons.” *Id.* at 1–2. Space Data asserts that claims 1 and 17 do not require a particular spacing and that the “formation” language improperly excludes dependent claims 7, 8, and 9, which recite that the desired movement comprises “direction,” “velocity,” and “distance of travel.” *See id.* at 2. Space Data also claims that “[a]chieving a particular network topology is just one possible goal of managing a fleet of balloons.” *Id.*

Google counters that the determination of the “desired movement” is driven by the “desired network topology”—the “formation of balloons that one seeks to accomplish.” Joint Letter Br. 2. According to Google, the “desired movement” language does not require a particular spacing but must serve the purpose of maintaining a desired network topology. *Id.* (citing ’678 patent, Abstract, 7:48–55). Google also contends that the ’678 patent repeatedly states that the purpose of the invention is to “maintain a desired network topology.” *See* Responsive Br. 18. Google further argues that Space Data attempts to inject the concept of fleet management without any basis. Joint Letter Br. 2.

The parties provide no argument whether “move” or “reposition” should be included in the construction. In the context of the claims, there is no meaningful difference between those words. Nevertheless, the Court finds that using “move” in the construction will better instruct and less confuse the jury as other limitations of claims 1 and 17 reference the “movement” of the “target balloon” (or “balloon”) and thus there will be consistency between the claim limitations. The

Court thus adopts “move” instead of “reposition.”

Regarding the last limitation of the parties’ proposals, the Court is unpersuaded by Google’s arguments that “to achieve a desired formation of balloons” is the proper construction. To the extent that Google asserts that claims 1 and 17 require moving the target balloon to achieve a rigid network topology, let alone an even spacing between the balloons, the Court rejects that assertion. As Space Data contends, the ’193 patent discloses determining communication coverage gaps and making “rudimentary position adjustments [of the balloons] by varying the altitude into favorable wind speeds and directions.” Reply Br. 12 (citing ’193 patent at 34:8–11); *see also* ’193 patent at 12:8–9 (disclosing that weather data can be used to control the altitude of individual balloons to “catch favorable prevailing winds to help fill gaps in coverage”). Space Data also pointed this out during the interference proceedings. *See* Ex. 3 to Heaton Decl. 3, 8, ECF 267-5. On the other hand, the specification does not disclose that those embodiments require maintaining a specific network topology. As such, Google’s suggestion is improper as it limits the embodiments disclosed in the specification. *See Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013) (“[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.”).

The Court is also unconvinced by Google’s reliance on the ’678 patent’s disclosure that the balloons may be adjusted relative to another to maintain a desired network topology. As discussed above, the Court must construe the claims in light of the specification of the ’193 patent rather than the ’678 patent. The fact that the ’678 patent discloses the goal to achieve a desired network topology does not mean that the claims in dispute must exclude embodiments covered by the ’193 patent.

As a final point, the Court finds that Space Data’s proposal to include “to manage a fleet of balloons” in the construction is appropriate. While the ’193 patent does not use the word “fleet,” it discloses controlling balloons in a constellation of airborne communications platforms. *See, e.g.*, ’193 patent at 12:8–14, 34:8–11. As Space Data argues, “fleet” is a well-known term that means “a group . . . operated under unified control.” Joint Letter Br. 1 (citing *Merriam-Webster.com*, Merriam-Webster (Aug. 6, 2018)).

For the foregoing reasons, the Court adopts Space Data’s proposed construction.

D. “mesh network of balloons” (’193 patent: claims 4 and 17)

Space Data’s Proposal ⁵	Google’s Proposal	Court’s Construction
network of balloons in which each balloon is operable to receive data directed to it and route data to other balloons, thereby permitting redundancy	network of balloons in which each balloon can receive data from and route data to other balloons, thereby permitting redundancy	network of balloons in which each balloon can receive data from and route data to other balloons, thereby permitting redundancy

The disputed phrase “mesh network of balloons” appears in claims 4 and 17 of the ’193 patent. Claim 17 is representative:

17. A balloon, comprising:

a communication system operable for data communication with one or more other balloons in a **mesh network of balloons**; and

a controller coupled to the communication system, wherein the controller is configured to:

(a) determine the balloon's location;

(b) determine locations of one or more neighbor balloons relative to the balloon's determined location, wherein the one or more neighbor balloons are in the **mesh network of balloons**; and

(c) determine a desired movement of the balloon based on the determined locations of the one or more neighbor balloons relative to the balloon's determined location, wherein the desired movement of the balloon comprises a desired horizontal movement of the balloon; and

(d) control the target balloon based on the desired movement of the target balloon by controlling an altitude of the target balloon based on the desired horizontal movement of the target balloon.

’193 patent at 52:5–25 (emphasis added).

The Court has reviewed the parties’ arguments in their Joint Letter Brief. The differences between the proposed constructions are two-fold: (1) “is operable to” versus “can”; and (2) “directed to it” versus “from.” Space Data proposes the former while Google advocates for the latter.

⁵ The parties have submitted revised proposed constructions to narrow the dispute of this term. Joint Letter Br. 2–3. Thus, while the Court considers the arguments contained in the parties’ briefs, it does not assess the originally proposed constructions set forth therein.

Space Data argues that its construction is the one Google advanced in numerous patent applications. Joint Letter Br. 2. In particular, Space Data points out that the specification of Google’s ’678 patent describes that each balloon in a mesh network “is operable to receive data directed to it and to route data to other balloons.” *Id.* at 2–3 (citing ’678 patent at 6:16–19). According to Space Data, its definition is consistent with how the PTO and other courts describe mesh networks. *Id.* at 3. Space Data also argues that “operable to” and “directing of data” is “something that can be understood by the jury.” *Id.*

Google raises two problems with Space Data’s construction. First, in Google’s view, claim 17 already recites the term “operable” for a different element and thus the use of Space Data’s proposed “is operable to” is unhelpful and confusing. *Id.* Second, Google argues that “directed to it” is an awkward phrase and should be simplified to be “from.” *Id.*

The parties’ proposed constructions are very similar. In fact, the parties do not argue any meaningful difference between the proposed constructions other than that their proposal is easier for the jury to understand. The Court finds that Google’s construction is less confusing and will better aid the jury for the reasons that Google provides. *See Bd. of Trustees of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 528 F. Supp. 2d 967, 982 (N.D. Cal. 2007) (explaining that the purpose of claim construction is to aid the lay juror); *Control Res., Inc. v. Delta Elecs., Inc.*, 133 F. Supp. 2d 121, 127 (D. Mass. 2001) (“[C]laim construction must result in a phraseology that can be taught to a jury of lay people.”). Space Data provides no reasons why Google’s proposal is incorrect or confusing. Moreover, Space Data’s reliance on the specification of Google’s ’678 patent is unpersuasive. While that patent may inform this Court how a mesh network has been described in the field, it is not part of the ’503 patent. There is no reason why the construction of the ’503 patent claims must strictly adhere to the language in the ’678 patent.

Accordingly, the Court adopts Google’s proposal and construes “mesh network of balloons” as “network of balloons in which each balloon can receive data from and route data to other balloons, thereby permitting redundancy.”

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E. “wherein at least one of the geographical coordinates tracking system comprises a GPS” (’503 patent: claims 1, 6, 15, and 20; ’706 patent: claim 29)

Space Data’s Proposal	Google’s Proposal	Court’s Construction
Plain meaning, no construction needed	Indefinite: lack of antecedent basis	Indefinite: lack of antecedent basis

The disputed phrase “wherein at least one of the geographical coordinates tracking system comprises a GPS” appears in claims 1, 6, 15, and 20 of the ’503 patent and claim 29 of the ’706 patent. Claim 1 of the ’503 patent is representative:

1. A system comprising a plurality of airborne platforms, each airborne platform comprising an unmanned balloon; a payload that is separate from the unmanned balloon; a transceiver; first and second flight termination devices; at least two separate power sources for the first and second flight termination devices; a sensor; a processor; a pump; a valve; and a tether that when broken separates the unmanned balloon and the payload;

wherein the pump and the valve are configured to change an altitude of the airborne platform;

wherein the sensor comprises a pressure sensor;

wherein, in operation, the unmanned balloon substantially drifts along with the wind currents;

wherein the transceiver is capable of communicating with a communication device that is separate from the unmanned balloon;

wherein each of the first and second flight termination devices has an ability to independently terminate a flight of the unmanned balloon;

wherein at least one of the geographical coordinates tracking system comprises a GPS;

wherein the unmanned balloon is configured to operate above an attitude of about 60,000 feet;

wherein the unmanned balloon has a flight duration capability that is longer than that of weather balloons that have flight durations of approximately 2 hours;

wherein the payload is configured to communicate with an additional airborne payload attached to a separate unmanned balloon;

wherein each of the first and second flight termination devices has an ability to independently terminate a flight of the unmanned balloon based on a determination that further operation of the unmanned balloon presents a danger to air traffic; and

wherein each of the first and second flight termination devices has an ability to independently terminate a flight of the unmanned balloon based on a determination of a malfunction of the unmanned balloon.

’503 patent at 9:49–10:19 (emphasis added).

The phrase “wherein at least one of the geographical coordinates tracking system” does not appear in the preamble of the claims at issue. Space Data argues that “a claim is not *per se* indefinite [even] if the body of the claim recites additional elements which do not appear in the preamble.” Opening Br. 21 (citing MPEP § 2173.05(e)).⁶ According to Space Data, a person of ordinary skill in the art would understand that “each airborne platform” comprises the referenced “geographical coordinates tracking system” because “tracking the location of each platform is at heart of both patents.” *Id.* at 22 (citing Pullen Decl. ¶¶ 61–70).

Google counters that a person of ordinary skill in the art would not understand that the claimed airborne platforms comprise a “geographical coordinates tracking system” because the list of enumerated components in the preamble does not identify that element. *See* Responsive Br. 21. In Google’s view, the specifications⁷ of the ’503 and ’706 patents suggest that a tracking system may be replaced by a geographic locator. *Id.* Google further argues that the Court should not correct any drafting error because it is unclear (1) whether the airborne platform must contain a “geographical coordinates tracking system” or “geographic locator” and (2) whether the “geographical coordinates tracking system” must be located *within the* airborne platform or if that system could operate “off-balloon.” *Id.* at 21–22.

As a threshold issue, it is clear that claims 1, 6, 15, and 20 of the ’503 patent and claim 29 of the ’706 patent contain a drafting error. To the extent that Space Data relies on § 2173.05(e) of the MPEP and contends that there is no error, the Court rejects that contention. Section 2173.05(e) of the MPEP cites *In re Larsen*, 10 Fed. App’x 890 (Fed. Cir. 2001) for the proposition that “a claim is not *per se* indefinite if the body of the claim recites additional elements which do not appear in the preamble.” However, *In re Larsen* is distinguishable. In that case, the body of the claim recited “wherein the hook and the loop are assembled . . . with respect to each other to fasten the hook to *a linear member* with the hook being hooked to *the linear member* in the normal manner.” *In re Larsen*, 10 F. App’x at 891–92 (emphasis added). Although the preamble

⁶ MPEP is the abbreviation of “Manual of Patent Examining Procedure,” which is published by the PTO.

⁷ The ’503 and ’706 patents have identical specifications.

1 did not list a “linear member,” the body of the claim made clear that “a linear member” was being
2 claimed and described how that linear member connected to other elements of the claim. As such,
3 there was no ambiguity in the claim language. *Id.* at 892. In contrast, the disputed claims of the
4 ’503 and ’706 patents recite the element “geographical coordinates tracking system” that is
5 *untethered* to any other claimed component. In other words, the claims on their face do not recite
6 which system or component further comprises the “geographical coordinates tracking system,”
7 and thus it is clear that some limitation is missing. This defect is not cured even if a person of
8 ordinary skill in the art would understand the meaning of “geographical coordinates tracking
9 system.” The claims therefore contain a drafting error. In fact, Space Data admits this point. *See*
10 Opening Br. 22 (“Here, the lack of an explicit antecedent basis is but a minor drafting error in the
11 claims.” (internal quotation marks and citation omitted) (alteration omitted)).

12 A district court has the authority to correct errors in patents under limited circumstances.
13 While the court may “correct obvious minor typographical and clerical error in patents,” “major
14 errors are subject only to correction by the PTO.” *Novo Industries, L.P. v. Micro Molds Corp.*,
15 350 F.3d 1348, 1357 (Fed. Cir. 2003) (citation omitted). “A district court can correct a patent only
16 if (1) the correction is not subject to reasonable debate based on consideration of the claim
17 language and the specification and (2) the prosecution history does not suggest a different
18 interpretation of the claims.” *Id.* at 1357.

19 Under this standard, the power of the district court to correct a patent is more limited than
20 the PTO’s ability to do so by issuing certificates of correction under 35 U.S.C. §§ 254 and 255.
21 *Id.* at 1356. “That is necessarily the case, for otherwise there would be no point to the non-
22 retroactivity provisions Congress included in the 1952 statute authorizing certificates of
23 correction, which provide that certificates of correction are only effective for suits brought after
24 the certificate is issued.” *Altera Corp. v. PACT XPP Techs., AG*, No. 14-CV-02868-JD, 2015 WL
25 4999952, at *16 (N.D. Cal. Aug. 21, 2015) (citing *also Novo*, 350 F.3d at 1355–56). The district
26 court can only correct “obvious” errors that are “evident from the face of the patent itself,” while
27 the PTO can review the entire “intrinsic record,” including the prosecution history. *See Novo*, 350
28 F.3d at 1356–57. As such, for the district court to have authority to correct a patent, “the

correction must be obvious from looking just at the claims and the specification, without needing to turn to the prosecution history—though the district court must still consider whether the prosecution history tells *against* the proposed correction.” *Altera*, 2015 WL 4999952, at *16 (emphasis in original). Moreover, the “nature of the error [must] be apparent from the face of the patent.” *Novo*, 350 F.3d at 1357.

The Court finds that it does not have the power to correct the drafting error because, “although the fact of an error is apparent from the face of the patent, the nature of the required correction is not apparent.” *Dealertrack, Inc. v. Huber*, No. CV 06-2335, 2008 WL 11337838, at *3 (C.D. Cal. July 21, 2008); *see also Novo*, 350 F.3d at 1357. Space Data proposes that each claimed “airborne platform” comprises “at least one geographical coordinates tracking system.” Opening Br. 22. However, the claims and the specifications of the ’503 and ’706 patents are ambiguous as to whether those patents require that each and every airborne platform in a “system” must include a component that detects the position of the platform. Moreover, the ambiguity persists even if such a requirement could be read from the ’503 and ’706 patents. As Google points out (Responsive Br. 21), the specifications are unclear as to whether each airborne platform must contain a “tracking system” as opposed to a “geographic locator.” *See, e.g.*, ’503 patent at 4:47–51. Space Data does not contend that those two terms have the same meaning. *See* Reply Br. 14. Rather, Space Data argues that the term “geographic locator” is not at issue. *Id.* However, because the specifications do not explicitly disclose a system where each airborne platform comprises a “tracking system,” the fact that the specifications disclose the use of a “geographic locator” cannot be ignored. Contrary to Space Data’s proposal, the Court cannot simply guess that the patent applicant intended to claim a system where each airborne platform comprises a “tracking system” as opposed to a system where some platforms utilize a “geographic locator” or have no “tracking system” at all. *See Novo*, 350 F.3d at 1357–58 (holding that the district court goes beyond its authority when it corrects a patent by guessing what was intended).

Google also contends that it is unclear whether the “geographical coordinates tracking system” must be located within the airborne platform or if that “tracking system” could operate off-balloon. Response Br. 22. Space Data responds that the testimony of Dr. John Hansman, Jr.,

Google’s expert, forecloses the possibility that the “geographical coordinates tracking system” could operate off-balloon because he stated that a GPS unit measures the location of that unit. Reply Br. 14 (citing Ex. 6 to Hosie Decl. at 89:12–18, ECF 250-8). However, at best, Dr. Hansman testifies that a *GPS unit* must be attached to a platform. He does not testify that every type of “geographical coordinates tracking system” needs to be co-located with the platform. Thus, Google raises a dispute whether each “geographical coordinates tracking system” which Space Data seeks to claim must be included as a component of the plurality of airborne platforms. This ambiguity is further reflected by, for example, dependent claim 2 of the ’503 patent which recites that “[t]he system of claim 1[] . . . further compris[es] at least two geographical coordinates tracking system.” ’503 patent at 10:20–22. Claim 2 provides that a “geographical coordinates tracking system” may be included in the broader *system* and not necessarily within the claimed airborne platforms. Even if Space Data’s interpretation of the disputed phrase is a “more likely one,” that is not enough to permit this Court to correct the error. *Altera*, 2015 WL 4999952, at *17. Rather, the correction “must be ‘obvious’ and ‘not subject to reasonable debate.’” *Id.* Here, the Court is not satisfied that Space Data’s proposed amendment meets that requirement.

In addition, Space Data’s proposal indicates that each airborne platform may include more than one “geographical coordinates tracking system.” See Opening Br. 22 (proposing that each claimed “airborne platform” comprises “at least one geographical coordinates tracking system”). But the specifications of the ’503 and ’706 patents do not explicitly disclose that a given platform may utilize multiple tracking systems. Thus, the specifications are ambiguous on this point and the Court finds that Space Data’s proposal is subject to “reasonable debate.” *Novo*, 350 F.3d at 1348.

As discussed above, while the meaning of “geographical coordinates tracking system” may be clear to a person of ordinary skill in the art, the claims and specifications of the ’503 and ’706 patents do not make it to clear to a person of ordinary skill in the art how that limitation should be incorporated into the disputed claims. The scope of the corrected claims varies depending on the numerous possibilities in which the “system” or “plurality of airborne platforms” contain at least one “geographical coordinates tracking system.” As such, any correction would be material.

Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp., 587 F.3d 1339, 1353 (Fed. Cir. 2009) (holding that “courts cannot rewrite claims to correct material errors” (internal quotation marks and citation omitted)). As such, the Court finds that the drafting error is not an obvious typographical error that can be corrected. *Novo*, 350 F.3d at 1357. This case is drastically different from other situations where courts have found obvious errors such as a missing comma or using similar phrases to indicate the same element. *See, e.g., Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009) (holding that a missing comma in a chemical formula constituted an obvious typographical error); *Quanergy Sys., Inc. v. Velodyne Lidar, Inc.*, No. 16-CV-05251-EJD, 2017 WL 4410174, at *15 (N.D. Cal. Oct. 4, 2017) (holding that the phrase “plurality of photon detectors” was intended to mean “plurality of avalanche photodiode detectors”).

For the foregoing reasons, this Court concludes that it may not correct the drafting error in claims 1, 6, 15, and 20 of the ’503 patent and claim 29 of the ’706 patent. *See Novo*, 350 F.3d at 1357 (holding that the “nature of the error [was] not apparent from the face of the patent” where it was unclear how the claim could be corrected). Accordingly, the term “geographical coordinates tracking system” in the disputed phrase “wherein at least one of the geographical coordinates tracking system comprises a GPS” lacks any clear antecedent basis. For the same reasons discussed above, this lack of clear antecedent basis renders those claims indefinite as failing to “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 134 S.Ct. at 2129. The Court therefore finds claims 1, 6, 15, and 20 of the ’503 patent and claim 29 of the ’706 patent invalid for indefiniteness.

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F. “substantially drifts along with the wind current taking into account the wind currents to prevent the airborne platform from becoming an uncontrolled lighter-than-air airborne platform” (’503 patent: claim 28)⁸

Space Data’s Proposal ⁹	Google’s Proposal ¹⁰	Court’s Construction
substantially drifts with the wind, and, considering the speed and direction of the wind, the flight is terminated if the speed and direction of the wind will cause the platform to become uncontrolled	substantially drifts with the wind, and, predicting where the wind is carrying the platform, the flight is terminated if the wind is predicted to carry the platform outside of desired boundaries	Indefinite: lack of antecedent basis (Claim 28 depends from independent claim 20 which is invalid for indefiniteness)

The disputed term appears in claim 28 of the ’503 patent which recites:

28. The method of claim 20, wherein the unmanned balloon **substantially drifts along with the wind currents taking into account the wind currents to prevent the airborne platform from becoming an uncontrolled lighter-than-air airborne platform.**

’503 patent at 13:21–25 (emphasis added).

Claim 28 depends from independent claim 20. In the previous disputed term, the Court found that claim 20 is invalid for indefiniteness. The language in claim 28 does not cure the indefiniteness identified above. The Court thus finds that claim 28 is also invalid for indefiniteness. Accordingly, the Court need not address the parties’ arguments pertaining to this disputed term.

V. ORDER

As set forth above, the Court construes the disputed terms as follows:¹¹

Claim Term	Court’s Construction
“are launched in a manner such that when in an operating range of 60,000 to 140,000 feet there is substantially a relative distance between said plurality of lighter-than-air platforms” (’941 patent: claims 1, 52, and 67)	Indefinite: “substantially a relative distance” renders the claims indefinite under <i>Nautilus, Inc. v. Biosig Instruments</i> , 134 S. Ct. 2120 (2014)
“control signal processor device”	Indefinite under <i>Nautilus, Inc. v. Biosig</i>

⁸ Space Data does not assert claims 4 and 5 of the ’503 patent. Reply Br. 14. As such, only the disputed term in claim 28 of the ’503 patent is at issue.

⁹ After a meet and confer, the parties submitted revised proposed constructions in their supplemental briefs. ECF 319, 326.

¹⁰ In a footnote, Google argues that claim 28 is indefinite under *IPXL Holdings*. Defs.’ Suppl. Br. 1 n.1.

¹¹ This order does not determine whether any of the disputed terms lack written description support under § 112, first paragraph because that issue was not present to the Court.

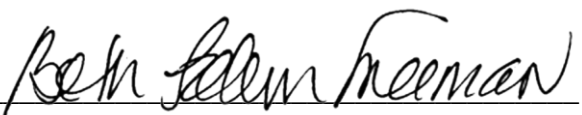
('941 patent: claim 7)	<i>Instruments</i> , 134 S. Ct. 2120 (2014). (Claim 7 depends from claim 2, which further depends on independent claim 1 which is invalid for indefiniteness)
“(determining/determine) a desired movement of the target balloon based on the determined locations of the one or more neighbor balloons relative to the determined location of the target (balloon/balloon’s determined location)”	(determining/determine) how to move the (target balloon/balloon) based on its location relative to the locations of one or more neighbor balloons to manage a fleet of balloons
('193 patent: claims 1 and 17) “mesh network of balloons”	network of balloons in which each balloon can receive data from and route data to other balloons, thereby permitting redundancy
('193 patent: claims 4 and 17) “wherein at least one of the geographical coordinates tracking system comprises a GPS”	Indefinite: lack of antecedent basis
('503 patent: claims 1, 6, 15, and 20; '706 patent: claim 29) “substantially drifts along with the wind current taking into account the wind currents to prevent the airborne platform from becoming an uncontrolled lighter-than-air airborne platform”	Indefinite: lack of antecedent basis (Claim 28 depends from independent claim 20 which is invalid for indefiniteness)
('503 patent: claim 28)	

The Court also adopts the following constructions that the parties agreed in their stipulation:

Term	Agreed Construction
“free floating” ('941 patent: claims 1, 2, 7, 17, 27, 40, 49, 52, and 67; '503 patent, claims 8 and 9)	plain meaning
“without any longitudinal and latitudinal control” ('941 patent: claims 1, 52, and 67)	without any horizontal control other than adjusting altitude to catch and drift with different wind patterns

IT IS SO ORDERED.

Dated: September 6, 2018


BETH LABSON FREEMAN
United States District Judge